

Application No. 10/711,403  
Technology Center 1775  
Amendment dated January 17, 2007  
Submission Accompanying RCE under 37 CFR §1.114

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### REMARKS

In an Advisory Action filed November 3, 2006 (Paper No. 20061030), the Examiner reviewed claims 1-20 of the above-identified US Patent Application, with the result that a rejection under 35 USC §103 was maintained against all claims on the basis of U.S. Patent No. 5,891,584 to Coffinberry et al. (Coffinberry) in view of Japanese Patent No. 356030514A to Hikino et al. (Hikino) and EP 0304176 A2 to Priceman. In response, Applicants have amended the claims as set forth above. More particularly:

Independent claims 1 and 9 have been amended to clarify that the coating systems (14,24) are on opposite first and second surfaces of the wall (12), and that the coating systems (14,24) - and not the wall surfaces on which they are deposited - are wetted by the hydrocarbon fluid or exposed to an environment at a temperature higher than the hydrocarbon fluid. This limitation is evident from Figure 1 and discussed in Applicants' specification at [Para 19].

Claims 1 and 9 have been further amended to require that each of the outermost layers (18,28) and each of the ceramic barrier layers (16,26) is deposited by chemical vapor deposition, so that each coating system (14,24) has a surface finish that replicates the surface finish of the wall surface beneath the coating system (14,24). Support for these amendments can be found in Applicants' specification in [Para 29].

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Applicants believe that the above amendments do not present new matter. Favorable reconsideration and allowance of claims 1-20 are respectfully requested in view of the above amendments and the following remarks.

**Rejection under 35 USC §103**

As now amended, the claims require that the coating systems (14,24) on each surface of the wall (12) are

deposited by chemical vapor deposition so that the first coating system [14] has a surface finish that replicates the surface finish of the first surface of the wall [12] and the second coating system [24] has a surface finish that replicates the surface finish of the second surface of the wall [12].

In contrast, though Coffinberry discloses depositing a smooth coating by "effusive chemical vapor deposition" (effusive CVD) to thicknesses of about 0.1 to 5.0 micrometers (100 to 5000 nm), Coffinberry's coating is tantala and/or zirconia, and does not contain platinum. Though Hikino discloses "a layer 1 for oxidative destruction of organic compounds . . . made up of an incomplete mixture of at least one catalyst for oxidative destruction of tar . . . and an inorganic binder," and Coffinberry states that platinum is one of the catalysts disclosed by Hikino, the combination of Coffinberry and Hikino does not

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suggest:

(1) "an outermost layer [18,28] *consisting essentially of* platinum," because Hikino's use of platinum as the "catalyst for oxidative destruction of tar" requires the platinum to be in an "incomplete mixture" with an "inorganic binder"; and

(2) a coating system (14,24) having "a surface finish that replicates the surface finish of" the surface on which the coating system (14,24) is deposited, which Applicants teach is "a requirement for the low-emissivity coating systems 14 and 24 of this invention" (see [Para 29]).

Priceman also fails to disclose or teach anything regarding the above limitations, and therefore Applicants respectfully request withdrawal of the rejections of the claims under 35 USC §103(a).

In the Office Action filed January 18, 2006 (Paper No. 20051228), the Examiner addressed the limitation in dependent claim 17 regarding the surface roughness of the outermost (platinum) layers (18,28) being "not greater than about one micrometer  $R_a$ ," by stating

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neither Coffinberry nor Hikino teach the outermost layer as having a roughness. However, the layer thicknesses of the layers are taught in which roughness could not exceed one micrometer as this would exceed or equal the thickness of the layers themselves. Therefore, it is fully expected that the coating will have a roughness not greater than about one micrometer.

Office Action Paper No. 20051228, Page 5.

Such a statement is incorrect, because the thickness of a coating does not limit its surface roughness. For example, a coating deposited on a surface whose surface roughness far exceeds the thickness of the coating (e.g., a coating thickness of one micrometer on a surface with a surface roughness of ten micrometers  $R_a$ ) will clearly have a surface roughness that corresponds to that of the surface and far exceeds the thickness of the coating.

The amendments to independent claims 1 and 9 emphasize this distinction in that, because the coating systems (14,24) are required to replicate the surfaces of the wall (12) on which they are deposited, the claimed surface roughness of the coating systems (14,24) is not determined or limited by the thicknesses of the coating systems (14,24), but rather by the surface roughness of the surfaces of the wall (12). Therefore, the limitation of claim 17, in combination with the limitations added to claims 1 and 9, dictates that both the coating systems (14,24) and the surfaces of the wall (12) have surface roughnesses of about one micrometer  $R_a$  or less.

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Because neither Coffinberry, Hikino, or Priceman teach or suggest this limitation, Applicants believe that claim 17 is patentably distinguishable over the prior art of record.

**Closing**

In view of the above, Applicants respectfully request that their patent application be given favorable reconsideration.

Should the Examiner have any questions with respect to any matter now of record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,

By   
Domenica N.S. Hartman  
Reg. No. 32,701

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Hartman & Hartman, P.C.  
Valparaiso, Indiana 46383  
TEL.: (219) 462-4999  
FAX: (219) 464-1166